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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/025,005	12/19/2001	Jared E. Bobbitt	004933.P004	3627
30368	7590	07/15/2005	EXAMINER	
EMC CORPORATION 6801 KOLL CENTER PARKWAY PLEASANTON, CA 94566			ALAUBAIDI, HAYTHIM J	
			ART UNIT	PAPER NUMBER
			2161	

DATE MAILED: 07/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	10/025,005	BOBBITT ET AL.
	Examiner	Art Unit
	Haythim J. Alaubaidi	2161

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 29 April 2005.
 2a) This action is **FINAL**. 2b) This action is non-final.
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-30 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
 5) Claim(s) _____ is/are allowed.
 6) Claim(s) 1-8, 10-13, 16-22, 24-26, 29 and 30 is/are rejected.
 7) Claim(s) 9, 14, 15, 23, 27 and 28 is/are objected to.
 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.
 10) The drawing(s) filed on 19 December 2001 is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) Notice of References Cited (PTO-892)
 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
 Paper No(s)/Mail Date _____.
 4) Interview Summary (PTO-413)
 Paper No(s)/Mail Date _____.
 5) Notice of Informal Patent Application (PTO-152)
 6) Other: _____.

DETAILED ACTION

1. This communication is Final Office Action in response to the amendment of April 29, 2005.
2. Claims 1-30 are presented for examination, with Claims 1, 12, 16 and 25 as Independent Claims.
3. Claims 1-4, 7-8, 10-13, 16-22, 24-26 and 29-30 are rejected under 35 U.S.C. 102(b).
4. Claims 5 and 6, are rejected under 35 U.S.C. 103(a).
5. Claims 9, 14-15, 23 and 27-28 are objected to as being dependent upon a rejected base claim.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1-4, 7-8, 10-13, 16-22, 24-26 and 29-30 are rejected under 35 U.S.C. 102(b) as being anticipated by Joseph E. Provino (U.S. Patent No. 5,778,384 and Provino hereinafter).

Regarding Claims 1, 11-12, 16 and 25 Provino discloses:

aggregating the storage space of said plurality of file systems into a single virtual storage space (Col 6, Lines 2-10) that appears to clients as local file system (Col 6, Lines 11-24);

creating a virtual volume directory and file name hierarchy including a virtual pathname for each data file stored in the virtual volume (Col 6, Lines 2-10; see also Col 6, Lines 54-57; see also Col 9, Lines 1-8; see also Col);

providing a software virtualization layer (redirector) including both client-side and server-side software components that cooperatively enable clients to access data files stored in the virtual volume through reference (identifiers) to the virtual pathnames for those data files (Col 23, Line 63 through Col 24, Line 8);

wherein clients that access data files stored in the virtual volume do not need to know the file servers and pathnames under which those data files are actually stored (Col 17, Line 66 through Col 18 Line 11, i.e. "*in which at least some access requests do not include path information*");

associating data that are separate from the underlining file system with the virtual directory (Col 6, Lines 10-25; see also Figure 3 and corresponding text); and the data including metadata and pointer (Col 8, Lines 56-63).

Regarding Claim 2, Provino discloses LAN (Figure No. 1 and corresponding text; see also Col 1, Lines 16-23).

Regarding Claims 3 and 30, Provino discloses WAN (Figure No. 1 and corresponding text; see also Col 1, Lines 37-40).

Regarding Claim 4, Provino discloses different file system types (Col 10, Lines 9-14; see also Col 15, Lines 60-65).

Regarding Claims 7 and 17, Provino discloses storing file mapping that is used to route client file system access requests that reference a virtual file name to a file server and location at which the data file is actually stored (Col 8, Line 56 through Col 9, Line 3).

Regarding Claims 8, 13, 18-19 and 26, Provino, discloses wherein data describing the virtual volume directory and file name hierarchy is stored in a master logical volume and the data files corresponding to the virtual pathnames in the virtual volume are stored in one or more slave logical volumes (Figure No. 1 and corresponding text; see also Col 6, Lines 2-10; see also Col 6, Lines 11-24; see also Col 6, Lines 2-10; see also Col 6, Lines 54-57; see also Col 9, Lines 1-8; see also Col).

Regarding Claim 10, Provino discloses maintaining a copy of system configuration information that identifies the file server used to host the master logical volume and the file servers hosting the slave logical volumes on each of said one or more file servers (Col 5, Lines 15-22; see also Col 8, Lines 37-43; see also Col 11, Lines 13-20).

Regarding Claims 20-22, Provino discloses wherein each file in the master directory and file hierarchy structure comprises a pointer file that includes data that identifies on what slave logical volume the data file corresponding to that file is physically stored (Col 23, Line 63 through Col 24, Line 8).

Regarding Claim 23, Provino discloses wherein a copy of system configuration information that identifies the file servers that host each of the master logical volume and the slave logical volumes is maintained on each client that accesses the virtual file system (Col 5, Lines 15-22; see also Col 8, Lines 37-43; see also Col 11, Lines 13-20).

Regarding Claim 29, Provino discloses, system configuration information is changed in response to a change in a configuration of the plurality file servers and/or underlying file systems, and wherein each client includes an agent that updates the local copy of the system configuration information stored on the client when the system configuration information is changed (Col 7, Lines 52-60).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. Claims 5 and 6, are rejected under 35 U.S.C. 103(a) as being unpatentable over Joseph E. Provino (U.S. Patent No. 5,778,384 and Provino hereinafter) in view of James E. Reuter (U.S. Patent No. 6,745,207 and Reuter hereinafter).

Regarding Claims 5 and 6, Provino reference discloses all of the claimed subject matter set forth above including the feature of adding new file system (Col 2, Lines 20-35), except it does not explicitly indicate the step of dynamically scaling the single virtual storage space by adding a new underlying file system to the virtual file system without having to take any existing underlying file system offline. However, Reuter discloses scaling the single virtual storage space by adding a new underlying file system to the virtual file system without having to take any existing underlying file system offline (Col 8, Lines 8-19; see also Col 8, Lines 22-24; see also Col 10, Lines 9-16; see also Col 11, Lines 39-52; see also Col 2, Lines 1-8).

Given the intended broad application of the Provino's system, it would have been obvious to a person of ordinary skill in the art at the time of Applicant's invention to modify the teachings of Provino with the teachings of Reuter to add the scaling feature by adding a new file system without having to take the system off-line; one reason would be to increase the flexibility of managing the resources, saving time in accessing the storages and the reduction of the cost (Reuter, Col 2, Lines 9-17).

Allowable Subject Matter

10. Claims 9, 14-15, 23 and 27-28 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

11. The following is the Examiner's statement of reasons for the indication of allowable subject matter:

Regarding Claims 9, 14, 23 and 27, Applicant's particular system and associated methods for creation of a new virtual directory in the virtual directory and file name hierarchy comprises creating a new directory in the master directory and file hierarchy structure having a hierarchical position and name corresponding to a hierarchical position and name of the new directory in the virtual directory and file name hierarchy in combination with the other limitations of the claims, was not disclosed by, would not have been obvious over, nor would have been fairly suggested by the prior art of record or that encountered in searching of the prior art, the prior art fails to anticipate or render Applicant's limitations above obvious.

Dependent Claim 15 being further limiting to dependent Claim 14; and dependent Claim 28 being further limiting to dependent Claim 27 enabled by the Specification would also be allowed if their respective dependent Claims 14 and 27 are rewritten in independent form including all of the limitations of the base claim and any intervening claims.

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Points of Contact

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Haythim J. Alaubaidi whose telephone number is (571) 272-4014. The examiner can normally be reached on Monday - Friday from 8:00 AM to 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Safet Metjahic, can be reached on (571) 272-4023.

Any response to this office action should be mailed to:

The Commissioner of Patents and Trademarks, Washington, D.C. 20231 or telefax at our fax number (703) 872-9306.

Please note on July 15, 2005, the Central Facsimile (FAX) Number will change from 703-872-9306 to 571-273-8300.

Hand-delivered responses should be brought to the Customer Service Window of the Randolph Building at 401 Dulany Street, Alexandria, VA 22314

Haythim J. Alaubaidi

Patent Examiner
Technology Center 2100
Art Unit 2161

Hosain Alam
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SUPERVISORY PATENT EXAMINER